



Strategic Procurement Policies for Innovation: Korean Case, Firm Survey and Empirical Results

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Project Overview

Korean Strategic Procurement Policies for Innovation

This presentation is part of Lee(2006), “Public procurement for firm's innovation promotion”, STEPI, Ch. 5 of “A comprehensive appraisal of policy instruments for studying firm's technological innovation” pp 264-312 (*in Korean*).¹⁾

The STEPI(2006) project had made an critical review on the policy instruments for firm's innovation promotion, analyzed their effects on the firm's innovation, and suggested some policy implications. In so doing, the project had dealt with 1) tax incentives for firm's innovative activities, 2) government financial measures, 3) **procurement**, 4) legal and institutional infrastructure (certifications and standards, intellectual property rights and test service), and 5) other measures such as promoting technology transfer, disseminating technology information, and technology consulting and assistance.

1) The basic description of the program in English is appeared in Lee(2007), “Strategic Public Procurement”, ed. APEC SME Innovation Center, Ch.10 of “Development of Human Capital for SME Innovation Policies” pp 448–484.



Contents

Government Program Cases

- New Technology Purchasing Assurance

Survey Results

Econometric Analysis Results



Case1: New Technology Purchasing Assurance

Overview

“In an effort to further commercialize new technologies, government agencies, public institutions including Defense Ministry, KEPCO (Korea Electric Power Corp.), KOGAS (Korea Gas Corporation), and Korea Railroad Corporation and private business commission SMEs to develop a new technology with the assurance that they will purchase the technological products.

Under this program, the SMBA finances the technological development of SMEs, while public institutions purchase the products for a certain period of time.”

Case1: New Technology Purchasing Assurance

Specifics of Application for “New Technology Purchasing Assurance”

Category	Searching for the Projects	Application Type	Development Period	Support Limit (Total Project Cost)		Amount of Subsidy
				Public Sector	Private Sector	
Leading Project	Demand Survey	Assigned Project	Less than 2 years	Less than 75%	Less than 55%	Up to 0.5 billion won
Investment Linkage Project	Demand Survey	Assigned Project	Less than 3 years	Less than 75%	Less than 55%	Up to 0.75 billion won
Practical Project	-	Free Topic Project	Less than 1 year	Less than 75%		Up to 0.25 billion won

Data Source: Small & Medium Business Administration (SMBA)

Note1: The fund for projects involving large firms among leading/investment linkage projects will be limited to 55% of the total budget.

Note2: Government will take 20% overhead, when the technology is successfully developed.

Case1: New Technology Purchasing Assurance

Trends: New Technology Purchase Assurance Program

	Subsidy (100million, KRW)	# of Purchasing Organizations			# of Firms Supported
		Total	Public Organizations	Large Firms	
2002	9	1	1	0	13
2003	40	1	1	0	49
2004	40	8	8	0	40
2005	100	26	18	8	87
2006	160	45	25	20	154
2007	300	83	32	51	230
2008	400	127	36	91	
Total	649	127	36	91	

Data Source: The Small & Medium Business Administration

(Note: Total numbers indicate accumulated figures)

40,000million won approximately 40million dollars



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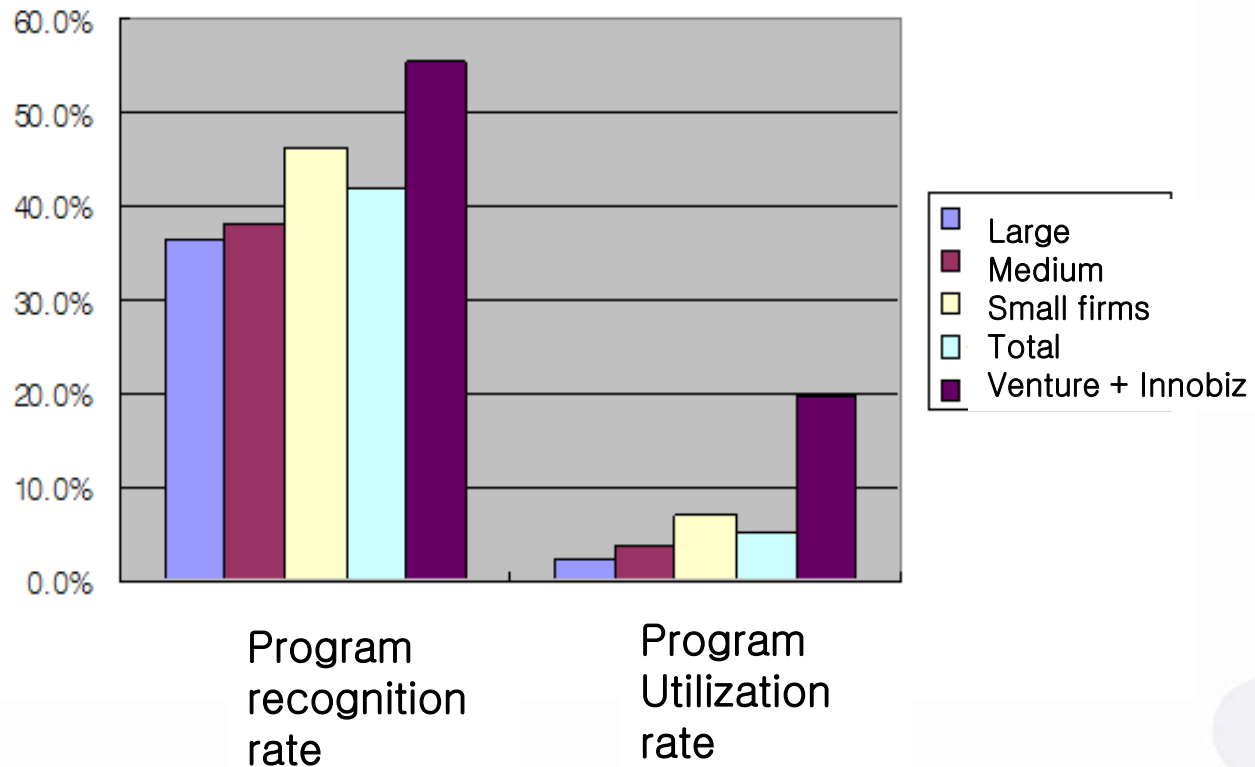
Survey Overview

- # of Effective Sample firms: 1,775
- Average # of employees: 324 persons
- Average # of researchers: 23 persons
- Sample period: 2003-2005
- Industries: Manufacturing and Knowledge Intensive Service Industries
- Large firms(19.1%), Medium(51.7%), Small(29.2%)
- Existence rates of research department in the firm: 87.7%
- # of policy programs in the survey: 30 programs
- # of procurement programs for innovation: 2 programs



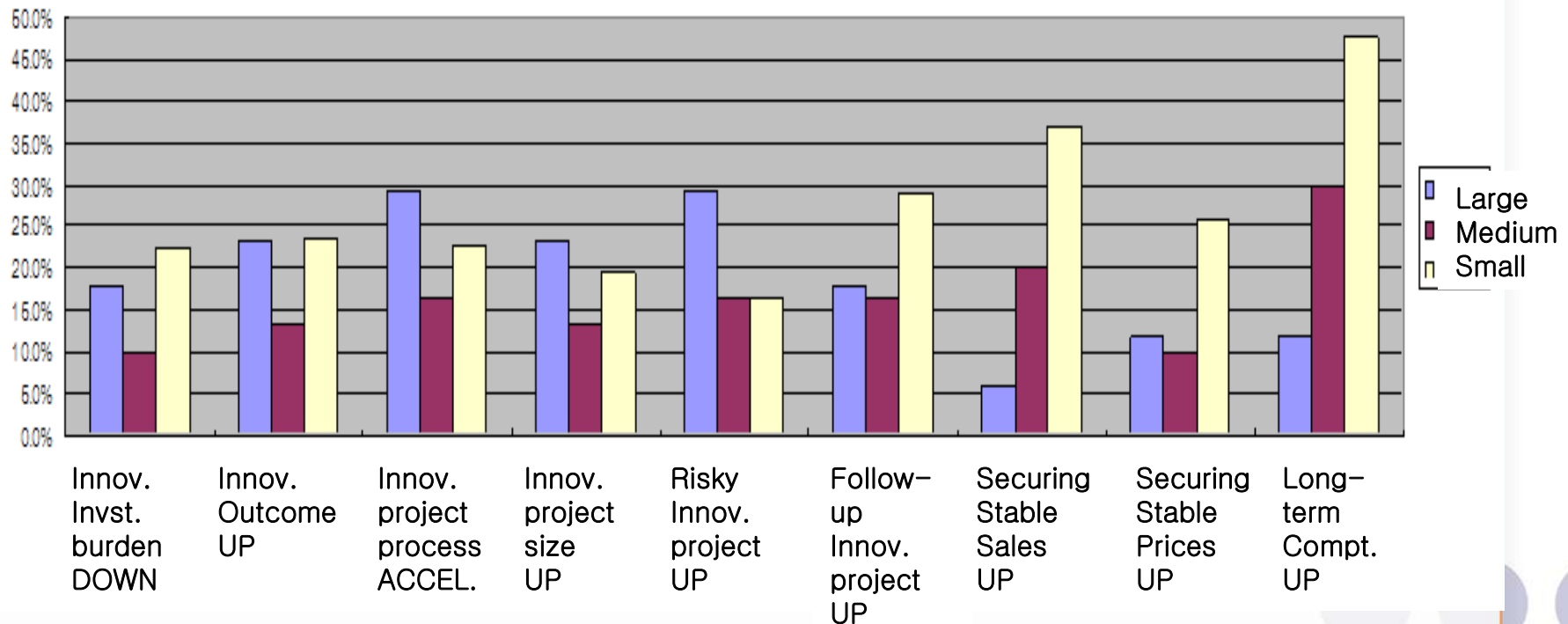
Case1: New Technology Purchasing Assurance

Program recognition and utilization rates by firms



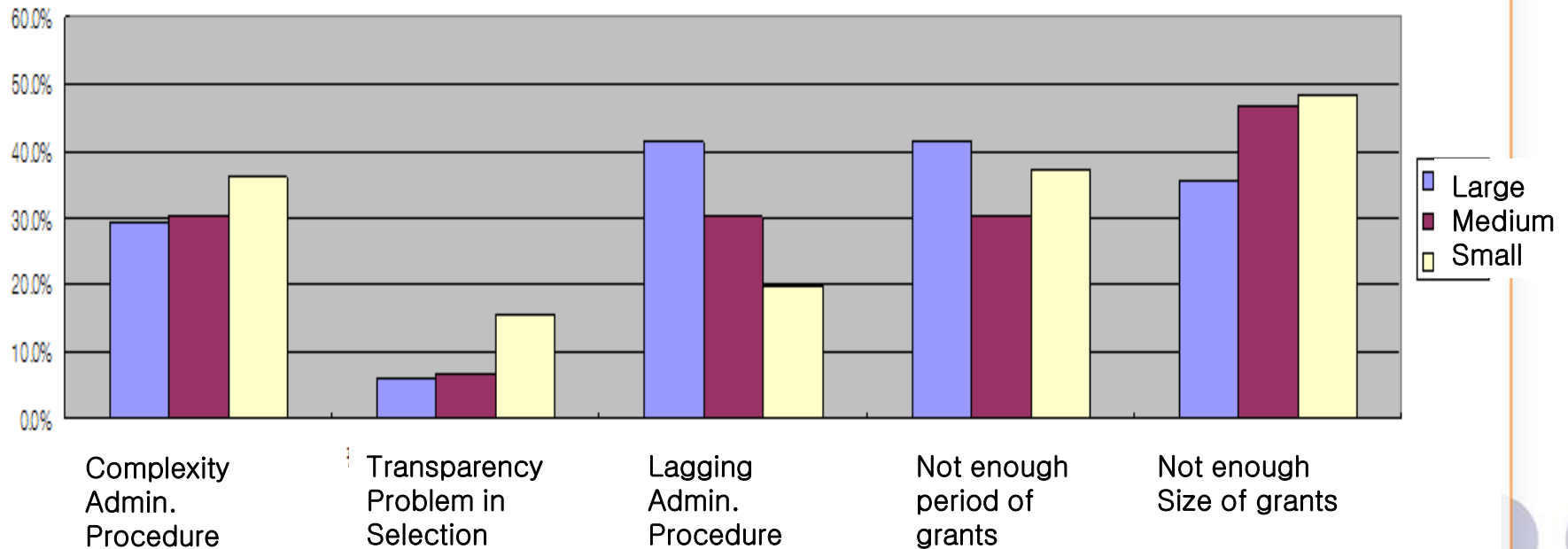


Rates of firms which had Innovative Behavioral Additionality Due to the Programs





Rates of firms which experienced various Regulatory Barriers of the program procedures





Econometric Analysis

Probit model estimation

According to the econometric analysis of the policy instruments, using the survey data, it was shown evidently that the tax incentives have greater effect on the firm's innovation activities, relative to other instruments such as government financial measures, procurement, legal and institutional infrastructure, and other indirect incentives.

Meanwhile, the indirect measures for promoting technology transfer, disseminating technological information, and technology consulting and assistance are very important particularly for the small- and medium-sized firms, who are deficient in resources of technology management.



Contents

Changes of Program Scheme and Performance

- New Technology Purchasing Assurance



Case1: New Technology Purchasing Assurance

Changes of Program Scheme in 2005

- Introduction of Target system for new technological product (5% of total procurement → 10% in 2010)
- Requirement to purchase 20% of New Excellent Product (NEP, certification product)

Improvements in regulations

- Performance Insurance for SMEs' products
- Performance certification
- Committee for procurement promotion of SMEs' technological products

Case1: New Technology Purchasing Assurance

Trends: New Technology Purchase Assurance Program

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Purchasing Organizations

		Participating Organizations (Purchasing Party)
Public Organizations (32)	National Organization	National Police Agency, Defense Department, National Emergency Management Agency, Defense Acquisition Program Administration, Korea Coast Guard, Korea Meteorological Administration, Ministry of Maritime Affairs and Fisheries
	Local Government	Daejeon, Samcheok
	Public Organization	Korea Coal Corporation, Korea Gas Corporation, Korea Airports Corporation, Korea South-East Power, Korea Southern Power, Korea Rural Corporation, Korea East-West Power, Korea Western Power, Korea National Oil Corporation, Korea Hydro & Nuclear Power, Korea Electric Power Corporation, Korea Minting and Security Printing Corporation, Korea Midland Power., Korea District Heating Corp., KORAIL, Korea Rail Network Authority, Environmental Management Corporation, Seoul National University of Technology, Korea Research Institute of Bioscience and Biotechnology, Korea Electrical Safety Corporation
	Local Public Utility	Seoul Metro, Seoul Metropolitan Rapid Transit Corporation
Large Private Firms (Total 51)		Keumho Tire, Daewoo Electronics, Daewoo Shipbuilding & Marine Engineering Co., Ltd., LG Dacom Corporation, Doosan Engine Co., Ltd, Doosaninfracore, Samsung Electro-mechanics Co., Ltd., Samsung Electronics, Samsung Heavy Industries, Samchully Co., Ltd., Korea Delphi Automotive Systems Corporation, Hyosung Co., Ltd., KT, LG International Corp., LG Electronics, POSCO, SKC, STX Engine, STX Group, STX Shipbuilding, Dae Dong Industrial, Dae Won Kang Up Co., Ltd., Dongwon Systems, Meister, Magna Chip Semiconductors, Samsung Fine Chemicals, Samsung Corning, Samsung Techwin, Saehan, Semes, Sebang, Secron, Shinheung, Amore-Pacific, Asiana IDT, IDS, Inkel, GMB Korea, Cuckoo Electronics, Clark Material Handling Asia, Hynix Semiconductors, Alcatel-Lucent Korea, Fuji Film Korea, Hanwha L&C, DK UIL, KT Networks, KTFT, LG Life Science, LG Innotek, LG Philips LCD, S&T Daewoo

Data Source: Hong (2008), "Trend & Issues on SME Public Purchasing R&D Promotion", KIET Industrial Economy Analysis

Case1: New Technology Purchasing Assurance

The Impact of Conditional Purchasing Policy

Categories	Overall			Ratio, By Project		
	2008	2007	Increase Rate (%)	2008	2007	Increase Rate (%)
Sales (including procurement)	2,025	833	143.10%	9.4	6.4	46.90%
Effective Import Substitution	1,018	536	89.90%	4.7	4.1	14.60%
Effective Cost Reduction	457	166	175.30%	2.1	1.3	61.50%
Policy Impact	3,500	1,535	128.00%	16.2	11.8	37.30%

Data Source: Korea Evaluation Institute of Industrial Technology (KEIT)
 (Unit: If not mentioned otherwise, 100 million, KRW)



Problems of Procurement for Innovation

- “Risk Aversion” behavior of public servants
- “Lack of Cooperation” from other public institutions for public procurement
- “Uncertainty and Unreliability” of SMEs’ new technology products: little track records



Lesson Learned

- Mitigating risk aversion behavior
 - Performance Insurance
- Enforcing Cooperation
 - Control: Requirements by Laws and Target System
- Mitigating “Uncertainty and Unreliability” of SMEs’ new technology products
 - Performance Certification (NET, NEP)



Distinguished Program Characteristics

- Hybrid model of “Push and Pull” innovation policies
 - Started from R&D program to advance including procurement demand policy
- Public-Private Partnership
 - gov’t provides R&D grants and public/private sectors provides procurements
- Mitigating risk aversion: Complementary Policies
 - Performance Insurance and Performance Certification
- Limitations: only applies to Manufacturing not services



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